Appl. No. 09/779,866
Preliminary Amendment, Reply to Final Office Action, mailed July 30, 2003,
and to Advisory Action mailed November 7, 2003

REMARKS

Applicant appreciates the time and effort expended by the Examiner in preparing for and conducting the interview on November 24, 2003. During the interview, the Examiner conceded that the claims as amended above would be distinguishable from the Anderson reference. While Applicant continues to believe that the claims as originally filed were not anticipated or rendered obvious by any of the cited art, the Applicant has amended the claims in an attempt to further prosecution of this matter. The claims have been amended by replacing most of the instances of the word "group" with the word "session." Support for this amendment is in the claims as originally filed. See, *e.g.*, claim 14 (which is also one of the claims that retains use of the word "group" as it was used in the original claims). Support is also in the specification. See, *e.g.*, paragraph [0053] of the specification. The claims have also been amended by replacing most of the instances of the word "order" with the word "sequence." Support for this amendment is in the specification. See, *e.g.*, paragraph [0028] of the specification.

During the interview, the Examiner suggested that Applicant review United States Patent No. 5,813,003, Chen et al. (hereinafter, the " '003 patent"). Applicant has reviewed the '003 patent and believes that the originally filed claims and the amended claims are patentable over the '003 patent, by itself and in combination with the other cited art.

In the following, the Examiner's comments from the July 30, 2003 final office action are included in bold, indented type, followed by the Applicant's remarks:

> **1. Claims 1-27 remain for examination.**

Claims 1-20, 22-24 and 26-27 are still pending in this application. Claims 21 and 25 are cancelled in the present preliminary amendment.

> **2. Applicant's arguments filed 6/02/03 have been fully considered but they are not persuasive.**
>
> **Applicants argue "Examiner's cited references fails to teach or suggest to person having ordinary skill in the art to perform an analysis of the groups of transactions to find associations in the order of the transactions in the groups ... Anderson discloses generally the steps of grouping data into clusters and analyzing transactions in terms of those clusters to determine relati nships between consumers and products (Anderson, Column 2, lines 63-66; column 3, lines 11-15)... Anderson would not, however, have taught or suggested to a person of ordinary skill at the**

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time this application was filed to apply these techniques to perform an analysis of transactions to find associations in the order of the transactions in the group as claimed in claims 1, 14, 20 and 24".

Examiner however disagrees with applicant's assertion that Anderson does not teach an analysis of transactions to find associations in the order of the transactions in the groups (col 3, lines 35-40), and then analyzing the groups to <u>determine buying behaviors,</u> patterns, habits. Anderson further discloses consumer behavior reports show consumer buying across time intervals, stores sites, product clusters, departments and within consumer clusters (col 14, lines 54-60). Examiner has determined that the claimed associations in the order of the transactions are equivalent to the disclosed purchasing behavior (col 4, lines 1-5). Examiner has interpreted purchasing behavior to mean a reliable set of purchases/transactions that are made by a consumer over a period of time. Anderson inherently determines an association exits in the order of the transactions during the computation of the purchasing behavior of a consumer. Examiner therefore holds Anderson's teachings and suggestions render the claimed invention unpatentable.

Anderson does not disclose or hint at "performing an analysis of the sessions of transactions to find associations in the sequence of the transactions in the session," as required by amended claims 1, 14, 20 and 24. The other cited references are missing the same element. Consequently, claims 1, 14, 20 and 24 are neither anticipated nor rendered obvious by the combination of Anderson with any of the cited references.

3.   Claim 1-6, 14-22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5878419 issued to Carter, herein referred to as Carter further in view of US 5974396 issued to Anderson et al.

Referring to Claims 1 and 20:

Carter discloses a method for use in analyzing associations in the order of transactions, the method comprising loading data from the transactions into a database system (col 3, lines 55-68; col 4, lines), where the data includes an entry for each transaction and the transactions are grouped into groups (col 6, lines 40-45; col 8, lines 20-25; col 9, lines 40-50);

Carter does not explicitly disclose the claimed "ordering the transactions within each group; and performing an analysis of the groups of transactions to find associations in the order of the transactions in the groups".

Anderson discloses ordering the transactions within each group and performing an analysis of the groups of transactions to find associations in the order of the transactions in the groups (col 6, lines 34-45; col, 35-40).

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> At the time the invention was made, it would have been obvious to
> a person of ordinary skill in the art to modify the teachings of Carter such
> that the transaction groups are analyzed to determine associations. One of
> ordinary skill in the art would have been motivated to do this because it
> would provide a system that can determine consumer-buying habits (col 6,
> lines 45-48)

Anderson does not disclose or hint at "performing an analysis of the sessions of transactions to find associations in the sequence of the transactions in the sessions," as required by amended claim 1 or that it "perform[s] an analysis of the sessions of transactions to find associations in the sequence of the transactions in the sessions" as required by amended claim 20. Carter is missing the same elements. Consequently, amended claims 1 and 20 are neither anticipated nor rendered obvious by the combination of Anderson with Carter.

Referring to Claim 24:

> Carter discloses database system for use in analyzing associations
> in the order of transactions, the database system comprising a massively
> parallel processing system (col 6, lines 1-6) comprising one or more nodes; a
> plurality of CPUs, each of the one or more nodes providing access to one or
> more CPUs (col 5, lines 30-50); a plurality of virtual processes each of the
> one or more CPUs providing access to one or more virtual processes; each
> virtual process configured to manage data stored in one of a plurality of
> data storage facilities (col 5, lines 60-69; col 6, lines 1-10); a parsing engine
> configured to parse transaction data and store the parsed transaction data
> in a table that is distributed across two or more data-storage facilities (col 3,
> lines 55-68, col 4, lines 1-5), where the data includes an entry for each
> transaction and the transactions are grouped into groups (col 4, lines 5-15;
> col 6, lines 40-45; col 8, lines 20-25; col 9, lines 40-50);

> Carter does not explicitly disclose the claimed "database-
> management component configured to operate on the table to order the
> transactions within each group; and perform an analysis of the groups of
> transactions to find associations in the order of the transactions in the
> groups."

> Anderson discloses database-management component configured
> to operate on the table to order the transactions within each group; and
> perform an analysis of the groups of transactions to find associations in the
> order of the transactions in the groups (col 6, lines 34-45).

> At the time the invention was made, it would have been obvious to
> a person of ordinary skill in the art to modify teachings of Carter such that
> the transaction groups are analyzed to determine associations. One of
> ordinary skill in the art would have been motivated to do this because it
> would provide a system that can determine consumer-buying habits (col 6,
> lines 45-48).

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Anderson does not disclose or hint that it "perform[s] an analysis of the sessions of transactions to find associations in the sequence of the transactions in the session," as required by amended claim 24. Carter is missing the same element. Consequently, amended claim 24 is neither anticipated nor rendered obvious by the combination of Anderson with Carter.

Referring to Claim 14:

> Carter discloses a method for use in analyzing associations in the order of transactions, the method comprising loading data from the transactions into a database system (col 3, lines 55-68; col 4, lines), where the data includes an entry for each transaction and wherein loading the data comprises grouping the transactions into group (col 6, lines 40-45; col 8, lines 20-25; col 9, lines 40-50);

> Carter does not explicitly disclose "selecting sessions of transactions belonging to the same group and corresponding to a single session; ordering the transactions within each session; and performing an analysis of the sessions of transactions to find associations in the order of the transactions in the sessions."

> Anderson discloses selecting of transactions belonging to the same group and corresponding to a single session (col 21, lines 55-65); ordering the transactions within each session; and performing an analysis of the sessions of transactions to find associations in the order of the transactions in the sessions (col 22, lines 15-25).

Anderson does not disclose or hint at "performing an analysis of the sessions of transactions to find associations in the sequence of the transactions in the sessions," as required by amended claim 14. Carter is missing the same element. Consequently, amended claim 14 is neither anticipated nor rendered obvious by the combination of Anderson with Carter.

Referring to Claim 2:

> Carter and Anderson disclose the limitations as discussed in Claim 1 above. Anderson further discloses the data for each transaction includes a time stamp related to a time that the transaction occurred and wherein ordering the transactions comprises numbering the transactions based on the time stamps included in the data for the transactions (col 21, lines col 21, lines 45-46).

Claim 2 depends from claim 1 and is patentable for at least the same reasons as described above for claim 1.

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Referring to Claim 3:

Carter and Anderson disclose the limitations as discussed in Claim
2 above. Anderson further discloses the transactions comprises numbering
the transactions in order from the transaction having the earliest time
stamp to the transaction having the latest time stamp (col 21, lines col 21,
lines 45-46, col 22, lines 15-20.

Amended claim 3 depends from claim 1 and is patentable for at least the same reasons as described above for claim 1.

Referring to Claim 4:

Carter and Anderson disclose the limitations as discussed in Claim
1 above. Carter further discloses loading the data from the transactions
into the database system comprises parsing the data for each transaction
into fields in the database system; and identifying one of the fields as a
group identifier field where a group identifier for each transaction is stored
(col 8, lines 5-25; col 2, lines 5-20).

Amended claim 4 depends from claim 1 and is patentable for at least the same reasons as described above for claim 1.

Referring to Claim 5:

Carter and Anderson disclose the limitations as discussed in Claim
4 above. Carter further discloses loading the data from the transactions
into the database system further comprises identifying one of the fields as
an item identifier field where an item identifier for each transaction is
stored (col 9, lines 50-55).

Claim 5 depends from claim 1 and is patentable for at least the same reasons as described above for claim 1.

Referring to Claim 6:

Carter and Anderson disclose the limitations as discussed in Claim
1 above. Carter further discloses wherein performing the analysis
comprises performing an affinity analysis (col 6, lines 35-50).

Carter does not disclose the type of affinity analysis claimed in claim 6, an example of which is described beginning on page 13, line 20 of the specification. Further, claim 6 depends from claim 1 and is patentable for at least the same reasons as described above for claim 1.

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Referring to Claim 15:

Carter and Anderson disclose the limitations as discussed in Claim
14 above. Anderson further discloses each entry includes a time stamp
related to a time that the transaction occurred and selecting comprises
selecting entries with time stamps lying in a predetermined range (col 21,
lines 45-47).

Claim 15 depends from claim 14 and is patentable for at least the same reasons as
described above for claim 14.

Referring to Claim 16:

Carter and Anderson disclose the limitations as discussed in Claim
15 above. Anderson further discloses ordering comprises numbering the
selected entries based on their respective time stamps (col 21, lines 45-46).

Claim 16 depends from claim 14 and is patentable for at least the same reasons as
described above for claim 14.

Referring to Claim 17:

Carter and Anderson disclose the limitations as discussed in Claim
16 above. Anderson further discloses numbering comprises numbering the
selected entries from the earliest to the latest (col 22, lines 15-20).

Claim 17 depends from claim 14 and is patentable for at least the same reasons as
described above for claim 14.

Referring to Claim 18:

Carter and Anderson disclose the limitations as discussed in Claim
16 above. Anderson further discloses numbering comprises numbering the
selected entries from the latest to the earliest (col 22, lines 15-20).

Claim 18 depends from claim 14 and is patentable for at least the same reasons as
described above for claim 14.

Referring to Claim 19:

Carter and Anderson disclose the limitations as discussed in Claim
16 above. Anderson further discloses numbering comprises numbering the
selected entries based on their respective distance in time from a reference
time (col 21, lines 55-60; col 22, lines 15-20).

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Claim 19 depends from claim 14 and is patentable for at least the same reasons as described above for claim 14.

Referring to Claim 21:

Carter and Anderson disclose the limitations as discussed in Claim 20 above. Anderson further discloses executable instructions that cause a computer to select sessions of transactions belonging to the same group and corresponding to a single session (col 21, lines 55-60).

Claim 21 has been cancelled.

Referring to Claim 22:

Carter and Anderson disclose the limitations as discussed in Claim 20 above. Anderson further discloses a time stamp related to a time that the transaction occurred and where, in selecting sessions, the computer selects entries with time stamps lying in a predetermined range (col 21, lines 44-46).

Claim 22 depends from claim 20 and is patentable for at least the same reasons as described above for claim 20.

Referring to Claim 25:

Carter and Anderson disclose the limitations as discussed in Claim 24 above. Anderson further discloses the database-management component is configured to select sessions of transactions belonging to the same group and corresponding to a single session (col 21, lines 55-60).

Claim 25 has been cancelled.

Referring to Claim 26:

Carter and Anderson disclose the limitations as discussed in Claim 25 above. Anderson further discloses each entry includes a time stamp related to a time that the transaction occurred and where, in selecting sessions, the database management system is configured to select entries with time stamps lying in a predetermined range (col 21, lines 45-50).

Amended claim 26 depends from claim 24 and is patentable for at least the same reasons as described above for claim 24.

4.   **Claim 7-13, 23 and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over US 5878419 issued to Carter, herein referred to as Carter and US 5974396 issued to Anderson et al as applied to Claims 1 and**

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20 above, and further in view of US 5241648 issued to Cheng et al, herein referred to as Cheng and US 6061682 issued to Aggarwal, herein referred to as Aggarwal.

Referring to Claims 7, 23 and 27:

Carter and Anderson disclose the limitations as discussed in Claims 1, 20, and 24. Carter further disclose a method wherein loading data from the transactions into the database system comprises parsing the transaction data into fields in a base table in the database system (col 3, lines 55-68; col 4, lines); identifying one of the fields as a group identifier field where a group identifier for each transaction is stored (col 8, lines 22-25; col 9, lines 44-58); identifying one of the fields as an item identifier field where an item identifier for each transaction is stored (col 9, lines 44-58);

Carter and Anderson do not explicitly disclose the claimed "ordering the transactions in each group of transactions comprises concatenating an order number to the item identifier for each transaction and performing the analysis comprises building one or more support tables for one or more item identifiers with concatenated order number; and calculating support, confidence and lift by joining the support tables."

Cheng discloses ordering the transactions in each group of transactions comprises concatenating an order number to the item identifier for each transaction (Abstract, lines 5-14; col 5, lines 1-10).

Aggrawal discloses performing the analysis comprises building one or more support tables for one or more item identifiers with concatenated order number; and calculating support, confidence and lift by joining the support tables (col 9, lines 34-55; col 10, lines 50-55).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Carter to include an indexing and support/confidence/lift calculation method. One of ordinary skill in the art would have been motivated to do this because it would allow a user to determine associations between transactional items (col 3, lines 25/30).

Applicant disagrees. Agrawal does not, in the extracts identified by the Examiner, build one or more support tables for one or more item identifiers with concatenated order number, as required by amended claims 7, 23 and 27. Further, while Agrawal discusses calculating support, col. 9, lines 49-50, the extracts identified by the Examiner do not discuss the calculation of confidence or lift. Applicant requests that the Examiner more particularly identify the portions of Agrawal that describe this element. In addition, amended claims 7, 23 and 27 depend from claims 1, 20, and 24, respectively, and are patentable for at least the same reasons described above with respect to claims 1, 20 and 24, respectively.

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Referring to Claim 8:

Carter, Anderson, Cheng and Aggrawal disclose the limitations as disclosed in Claim 7 above. Aggrawal further discloses building the one or more support tables comprises counting the transactions containing various combinations of item identifiers with concatenated order number and dividing the count by a total number of groups to obtain a support for each of the combinations (col 8, lines 15-23).

Amended claim 8 depends from claim 7 and is patentable for at least the same reasons described above with respect to claim 7, 23 and 27.

Referring to Claim 9:

Carter, Anderson, Cheng and Aggrawal disclose the limitations as disclosed in Claim 7 above. Aggrawal further discloses building the one or more support tables comprises for each item identifier with concatenated order number, counting the transactions containing the same item identifier with concatenated order number and computing the support by dividing the count by a total number of groups and storing the item identifier with concatenated order number and the support in a first support table (col 8, lines 15-23).

Amended claim 9 depends from claim 7 and is patentable for at least the same reasons described above with respect to claim 7, 23 and 27.

Referring to Claim 10:

Carter, Anderson, Cheng an Aggrawal disclose the limitations as disclosed in Claim 9 above. Aggrawal further discloses building the one or more support tables further comprises building a second base table by selecting transactions from the first base table that include an item identifier corresponding to an item identifier and concatenated order numbering having a support more than a predetermined value (col 8, lines 55-65; col 9, lines 30-60, col 9, lines 54-58).

Applicant disagrees that the extracts of Agrawal cited by the Examiner disclose "building a second base table by selecting transactions from the first base table that include an item identifier corresponding to an item identifier and concatenated order number having a support more than a predetermined value" as required by amended claim 10. Applicant requests that the Examiner more particularly identify the portions of Agrawal that describe this element. Further, amended claim 10 depends from claim 7 and is patentable for at least the same reasons described above with respect to claim 7, 23 and 27.

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Referring to Claim 11:

Carter, Anderson, Cheng and Aggrawal disclose the limitations as disclosed in Claim 10 above. Aggrawal further discloses building the one or more support tables further comprises counting the transactions in the second base table containing various combinations of item identifiers with concatenated order number and dividing the count by a total number of groups in the second base table to obtain a support for each of the combinations (col 8, lines 15-23).

Amended claim 11 depends from claim 7 and is patentable for at least the same reasons described above with respect to claim 7, 23 and 27.

Referring to Claim 12:

Carter, Anderson, Cheng and Aggrawal disclose the limitations as disclosed in Claim 10 above. Aggrawal further discloses building the one or more support tables further comprises counting the transactions in the second base table containing combinations of two specified item identifiers with concatenated order number and dividing the count by a total number of transactions in the second base table to obtain a support for each of the combinations; and storing the item identifiers and computed support in a two item support table combinations (col 8, lines 15-23).

Amended claim 12 depends from claim 7 and is patentable for at least the same reasons described above with respect to claim 7, 23 and 27.

Referring to Claim 13:

Carter, Anderson, Cheng and Aggrawal disclose the limitations as disclosed in Claim 10 above. Aggrawal further discloses building the one or more support tables further comprises counting the transactions in the second base table containing combinations of N specified item identifiers with concatenated order number and dividing the count by a total number of transactions in the second base table to obtain a support for each of the combinations; and storing the item identifiers and computed support in an N item support table combinations (col 8, lines 15-23).

Amended claim 13 depends from claim 7 and is patentable for at least the same reasons described above with respect to claim 7, 23 and 27.

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In the following, the Examiner's comments from the November 7, 2003 Advisory Opinion are included in bold, indented type, followed by the Applicant's remarks:

> **The request for reconsideration has been considered but does NOT place the application in condition for allowance because: Applicant has argued that the finality of the action should be withdrawn because a new ground of rejection was presented. Examiner holds that pursuant to 37 CFR 1.97(c), MPEP 706.07(a) and 2112 new art was not introduced prior to making the action final, the art used to make the Rejection Final was presented to Applicant prior to Finality. Examiner holds that Anderson has been applied throughout prosecution of this application. Furthermore, an inherency argument was set forth to clarify the similarity between Anderson's analysis of buying behavior and the claimed analysis of transactions to determine associations in order of transactions. Examiner holds that making the office action final was proper.**

While Applicant disagrees with the Examiner's analysis and conclusion, this issue is now moot.

> **Applicant further argues that the buying behavior and the claimed analysis of transaction groups to determine associations in the order of the transactions are not equivalent. Examiner however disagrees with applicant. One can't determine if a consumer has a habit without analyzing a set of transaction over a period of time. Therefore examiner holds that to determine that a set of consumer always buy milk on the third Friday of a month, the system disclosed by would have to determine the relationship between these consumers transaction information. Examiner holds that Anderson does implicitly disclose the claimed "analysis of the groups of transactions to find associations in the order of the transactions in the groups.**

The Examiner agreed during the November 24, 2003 interview that the claims as amended are distinguishable from Anderson. Consequently, the amended claims are patentable over Anderson in combination with any of the cited references.
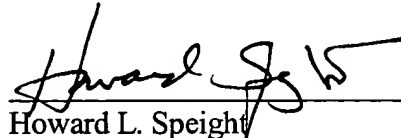
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SUMMARY

Applicant contends that the claims are in condition for allowance, which action is requested. Should any fees be required, Applicant requests that the fees be debited from deposit account number 50-1673, order number 9517.

Respectfully submitted,

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